

Interview Summary	Application No. 09/802,808	Applicant(s) FIRLIK ET AL.	
	Examiner Gregory L. Huson	Art Unit 3751	

All participants (applicant, applicant's representative, PTO personnel):

(1) Gregory L. Huson. (3)_____

(2) Paul Parker. (4)_____

Date of Interview: 31 May 2005.

Type: a) ☐ Telephonic b) ☐ Video Conference
c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____

Claim(s) discussed: 125-176.

Identification of prior art discussed: n/a.

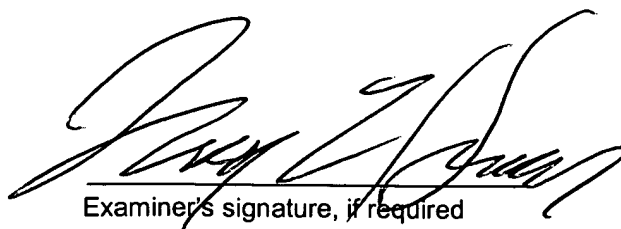
Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

GREGORY L. HUSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700


Examiner's signature, if required

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's rep proposed an amendment after final that accepts the previously allowed, and indicated as allowed, subject matter in this application. Additionally three new claims were proposed that depend from allowed claims. Support for the new claims was discussed, and applicant's rep will file an amendment that includes remarks pointing out the support for the claims and reasons for patentability. It would appear the proposed amendment places this application in condition for allowance, pending a further review of the actual amendment after final when so filed, by the examiner in charge of this application .

Attachment (9 pages)
to interview
summary of 5/31/05

RESPONSE UNDER 37 C.F.R. § 1.116

EXPEDITED PROCEDURE – Art Unit 3762

Attorney Docket No. 33734-8020US1

Express Mail Label EV551884176US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: ANDREW D. FIRLIK *ET AL.*

APPLICATION No.: 09/802,808

FILED: MARCH 8, 2001

FOR: **METHODS AND APPARATUS FOR
EFFECTUATING A LASTING CHANGE IN A
NEURAL-FUNCTION OF A PATIENT**

EXAMINER: R.D. BRADFORD

ART UNIT: 3762

CONF. NO: 8272

Proposed Amendment Under 37 C.F.R. § 1.116

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present communication responds to the Office Action dated May 4, 2005 in the above-identified application. Please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 2.

Amendments to the Claims:

Following is a complete listing of the claims pending in the application, as amended:

1-124. (Cancelled)

125. (Currently Amended) The method of claim ~~424~~127 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage of less than about 10V directly to the stimulation site.

126. (Currently Amended) The method of claim ~~424~~127 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage of approximately 50mV to 5V directly to the stimulation site.

127. (Previously Presented) A method of stimulating the brain of patient to effectuate a neural-function, comprising:

providing an image of neural activity in the brain of the patient;

selecting a stimulation site comprising a region at the cortex of the brain of the patient where a change in neural activity is expected to occur to carry out the neural-function; and

applying electrical stimulation to the stimulation site, wherein applying electrical stimulation to the stimulation site comprises applying a signal that results in an applied voltage approximately 10% greater than an expected resting potential of a population of neurons at the stimulation site.

128. (Previously Presented) The method of claim 127 wherein applying electrical stimulation to the stimulation site comprises applying a signal that results in an applied voltage approximately 10-80% greater than an expected resting potential of a population of neurons at the stimulation site.

129. (Previously Presented) The method of claim 127 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage effective to raise an expected resting potential of a population of neurons at the stimulation site by at least approximately 10-60% of a difference between the expected resting potential and an action potential for the population of neurons.

130. (Previously Presented) The method of claim 127 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage effective to raise an expected resting potential of a population of neurons at the stimulation site by approximately 10-80% of a difference between the expected resting potential and an action potential for the population of neurons.

131. (Currently Amended) The method of claim ~~424~~127, further comprising applying the electrical stimulation directly to the stimulation site.

132. (Currently Amended) The method of claim ~~424~~127, further comprising applying the electrical stimulation directly to the stimulation site by implanting an electrode proximate to the cortex of the patient and aligned with the stimulation site.

133. (Previously Presented) The method of claim 132 wherein the electrode is placed in direct contact with the pial surface of the brain of the patient.

134. (Previously Presented) The method of claim 132 wherein the electrode is placed at the dura of the brain of the patient.

135. (Previously Presented) The method of claim 132 wherein the electrode is placed in contact with the dura of the brain of the patient.

136. (Currently Amended) The method of claim ~~424~~127 wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of less than approximately 1000Hz.

137. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of less than approximately 200 Hz.

138. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of approximately 40-200Hz.

139. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of approximately 50-100Hz.

140. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 100 ms.

141. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 200 μ s.

142. (Currently Amended) The method of claim ~~424-127~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 100 μ s.

143. (Cancelled)

144. (Currently Amended) The method of claim ~~443-147~~ wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage of less than about 10V directly to the stimulation site.

145. (Currently Amended) The method of claim ~~143~~147 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage of approximately 50mV to 5V directly to the stimulation site.

146. (Currently Amended) The method of claim ~~143~~147 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage at least approximately 10% greater than an expected resting potential of a population of neurons at the stimulation site.

147. (Previously Presented) A method of stimulating the brain of a patient to effectuate a particular neural-function, comprising:

selecting a stimulation site comprising a region of the cortex in the brain of the patient where a change in neural activity is expected to occur to carry out the neural-function; and

applying electrical stimulation directly to the cortex at the stimulation site, wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage effective to raise an expected resting potential of a population of neurons at the stimulation site by at least approximately 10% of a difference between the expected resting potential and an action potential for the population of neurons.

148. (Previously Presented) The method of claim 147 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage effective to raise an expected resting potential of a population of neurons at the stimulation site by at least approximately 60% of a difference between the expected resting potential and an action potential for the population of neurons.

149. (Previously Presented) The method of claim 147 wherein applying electrical stimulation to the stimulation site comprises applying a signal having a voltage effective to raise an expected resting potential of a population of neurons at the

stimulation site by approximately 10-80% of a difference between the expected resting potential and an action potential for the population of neurons.

150. (Currently Amended) The method of claim ~~443~~147, further comprising applying the electrical stimulation directly to the stimulation site.

151. (Currently Amended) The method of claim ~~443~~147, further comprising applying the electrical stimulation directly to the stimulation site by implanting an electrode proximate to the cortex of the patient and aligned with the stimulation site.

152. (Previously Presented) The method of claim 151 wherein the electrode is placed in direct contact with the pial surface of the brain of the patient.

153. (Previously Presented) The method of claim 151 wherein the electrode is placed at the dura of the brain of the patient.

154. (Previously Presented) The method of claim 151 wherein the electrode is placed in contact with the dura of the brain of the patient.

155. (Currently Amended) The method of claim ~~443~~147 wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of less than approximately 1000Hz.

156. (Currently Amended) The method of claim ~~443~~147 wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of less than approximately 200 Hz.

157. (Currently Amended) The method of claim ~~443~~147 wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of approximately 40-200Hz.

158. (Currently Amended) The method of claim ~~443-147~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal having a frequency of approximately 50-100Hz.

159. (Currently Amended) The method of claim ~~443-147~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 100 ms.

160. (Currently Amended) The method of claim ~~443-147~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 200 μ s.

161. (Currently Amended) The method of claim ~~443-147~~ wherein applying the electrical stimulation to the stimulation site comprises applying a signal with a pulse width of less than about 100 μ s.

162-164. (Cancelled)

165. (Previously Presented) A method of stimulating the brain of patient to effectuate a neural-function, comprising:

providing an image of neural activity in the cortex of the brain of the patient;

selecting a stimulation site comprising a region of the cortex of the brain of the patient where a change in neural activity is expected to occur to carry out the neural-function;

applying an electrical signal directly to the stimulation site, wherein the signal is sufficient to provide a potential to the stimulation site that is approximately 10-80% greater than an expected resting potential of a population of neurons at the stimulation site.

166. (Previously Presented) The method of claim 165, further comprising performing behavioral therapy on the patient related to a body part controlled by the

particular neural-function while applying the electrical signal directly to the stimulation site.

167. (Previously Presented) The method of claim 165 wherein the patient has an impaired function because of a loss of the particular neural-function, and the method further comprises performing physical therapy on a body part of the patient controlled by the particular neural-function while applying the electrical signal directly to the stimulation site.

168-170. (Cancelled)

171. (Currently Amended) The method of claim ~~170~~172 wherein the stimulation site is located in the pre-motor cortex, motor cortex, and/or sensory cortex.

172. (Currently Amended) ~~The method of claim 170~~ A method of stimulating the brain of a patient to effectuate a particular neural-function, comprising:

assessing a symptom associated with stroke;

selecting a stimulation site comprising a region of the cortex in the brain of the patient where neural activity is expected to occur to carry out a neural-function associated with the stroke symptom;

applying electrical stimulation directly to the cortex at the stimulation site; and

wherein selecting a stimulation site further comprises (a) peripherally initiating neural activity associated with the stroke symptom and (b) determining where the neural activity associated with the stroke symptom occurs in response to the peripheral ~~stimulation~~ initiated neural activity.

173. (Cancelled)

174. (New) The method of claim 130 wherein applying the electrical stimulation to the stimulation site comprises ^{increase the probability of} effectuating the neural function in response to a

combination of both an intrinsic neural input of the patient and the applied electrical signal.

175. (New) The method of claim 130 wherein applying the electrical stimulation comprises applying an electrical signal below a level at which the electrical signal ~~alone~~ ^{triggers} ~~action potentials in the neural population.~~ ^{of neurons}

176. (New) The method of claim 130, further comprising implanting an electrode at the stimulation site such that the electrode contacts the dura of the brain of the patient, and wherein applying the electrical stimulation comprises applying a signal having a frequency less than 200 Hz, a pulse width less than 200 μ s, and at least one of a voltage and a current such that the electrical signal is below a level at which the electrical signal ~~alone~~ ^{triggers} ~~action potentials in the neural population.~~ ^{of neurons}

& directly causes action potentials to fire in the ~~neural~~ population of neurons.